b.) Amendments to the Claims

1. (Canceled)

2. (Previously Amended) A process for producing guanosine 5'-diphosphate-fucose, comprising:

allowing a guanosine 5'-triphosphate ("GTP") precursor, a saccharide and enzyme sources to be present in an aqueous medium, wherein the enzyme sources are (i) a culture broth of a microorganism capable of forming GTP from said GTP precursor or a treated product of the culture broth, and (ii) a culture broth of a microorganism capable of forming guanosine 5'-diphosphate-4-keto-6-deoxymannose ("GKDM") from said saccharide and GTP or a treated product of the culture broth;

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forming and accumulating GKDM in the aqueous medium;

converting the accumulated GKDM into guanosine 5'-diphosphate-fucose ("GDP-fucose") using, as an enzyme source, a culture broth of a microorganism capable of converting GKDM into GDP-fucose or a treated product of the culture broth to form and accumulate GDP-fucose in the aqueous medium; and

recovering the GDP-fucose from the aqueous medium,

wherein the treated products of the culture broth are treated products independently selected from the group consisting of a concentrated product of the culture broth, a dried product of the culture broth, cells obtained by centrifuging the culture broth, a dried product of the cells, a freeze-dried product of the cells, a surfactant-treated product of the cells, a solvent-treated product of the cells, an enzyme-treated product of the cells and an immobilized product of the cells.

3. (Currently Amended) A process for producing guanosine 5'-diphosphate-4-keto-6-deoxymannose, comprising:

allowing a guanosine 5'-triphosphate ("GTP") precursor, a saccharide and enzyme sources to be present in an aqueous medium, wherein the enzyme sources are (i) a culture broth of a microorganism capable of forming GTP from said GTP precursor or a treated product of the culture broth, and [a] (ii) a culture broth of a microorganism capable of forming guanosine 5'-diphosphate-4-keto-6-deoxymannose ("GKDM") from said saccharide and GTP or a treated product of the culture broth,

wherein the treated products of the culture broth ~~is~~ are ~~a~~ treated products independently selected from the group consisting of a concentrated product of the culture broth, a dried product of the culture broth, cells obtained by centrifuging the culture broth, a dried product of the cells, a freeze-dried product of the cells, a surfactant-treated product of the cells, a solvent-treated product of the cells, an enzyme-treated product of the cells and an immobilized product of the cells,

forming and accumulating GKDM in the aqueous medium; and

recovering the GKDM from the aqueous medium.

Claims 4-8. (Canceled)

9. (Original) The process according to claim 2, wherein the GTP precursor is selected from the group consisting of guanine, xanthine, hypoxanthine, guanosine, xanthosine, inosine, guanosine 5'-monophosphate, xanthosine 5'-monophosphate, and inosine 5'-monophosphate.

10. (Original) The process according to claim 2, wherein the saccharide is selected from the group consisting of glucose, fructose, and mannose.

11. (Currently Amended) The process according to claim 2, wherein the microorganism capable of forming GTP from a GTP precursor ~~is selected from microorganisms belonging~~ belongs to the genus *Corynebacterium*.

12. (Original) The process according to claim 11, wherein the microorganism is *Corynebacterium ammoniagenes*.

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13. (Currently Amended) The process according to claim 2, wherein the microorganism capable of forming GKDM from a saccharide and GTP is ~~at least~~ one ~~kind~~ or more strains of microorganisms.

14. (Currently Amended) The process according to claim 13, wherein the ~~at least~~ one ~~kind~~ or more strains of microorganisms ~~is at least one microorganism~~ are selected from ~~microorganisms belonging to~~ the genera *Escherichia* and *Corynebacterium*.

15. (Original) The process according to claim 14, wherein the microorganism belonging to the genus *Escherichia* is *Escherichia coli*.

16. (Original) The process according to claim 14, wherein the microorganism belonging to the genus *Corynebacterium* is *Corynebacterium ammoniagenes*.

17. (Currently Amended) The process according to claim 2, wherein the microorganism capable of forming GKDM from a saccharide and GTP ~~is a microorganism having~~ has a strong activity of at least one enzyme selected from the group consisting of glucokinase ("*glk*"), phosphomannomutase ("*manB*"), mannose 1-phosphate guanylyltransferase ("*manC*"), phosphoglucomutase ("*pgm*"), phosphofructokinase ("*pfk*"), and GDP-mannose 4,6-dehydratase ("*gmd*").

18. (Original) The process according to claim 17, wherein the microorganism is at least one microorganism having a recombinant DNA comprising a vector and a DNA fragment containing at least one gene selected from the group consisting of a *glk*-encoding gene, a *manB*-encoding gene, a *manC*-encoding gene, a pgm-encoding gene, a *pfk*-encoding gene, and a *gmd*-encoding gene.

19. (Currently Amended) The process according to claim 18, wherein at least one of the *glk*-encoding gene, the *manB*-encoding gene, the *manC*-encoding gene, the *pgm*-encoding gene, the *pfk*-encoding gene or the *gmd*-encoding gene is ~~a gene~~ derived from *Escherichia coli*.

20. (Currently Amended) The process according to claim 2, wherein the microorganism capable of converting GKDM into GDP-fucose ~~is a microorganism having~~ has strong GKDM epimerase/reductase ("*wcaG*") activity.

21. (Currently Amended) The process according to claim 20, wherein the microorganism ~~is a microorganism having~~ has a recombinant DNA comprising a vector and a DNA fragment containing a *wcaG*-encoding gene.

22. (Original) The process according to claim 21, wherein the *wcaG*-encoding gene is derived from *Escherichia coli*.

Claim 23 (Canceled)

24. (Original) The process according to claim 3, wherein the GTP precursor is selected from the group consisting of guanine, xanthine, hypoxanthine, guanosine, xanthosine, inosine, guanosine 5'-monophosphate, xanthosine 5'-monophosphate, and inosine 5'-monophosphate.

25. (Original) The process according to claim 3, wherein the saccharide is selected from the group consisting of glucose, fructose, and mannose.

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26. (Currently Amended) The process according to claim 3, wherein the microorganism capable of forming GTP from a GTP precursor ~~is selected from microorganisms belonging~~ belongs to the genus *Corynebacterium*.

27. (Original) The process according to claim 26, wherein the microorganism is *Corynebacterium ammoniagenes*.

28. (Currently Amended) The process according to claim 3, wherein the microorganism capable of forming GKDM from a saccharide and GTP is ~~at least~~ one ~~kind~~ or more strains of microorganisms.

29. (Currently Amended) The process according to claim 28, wherein the ~~at least~~ one ~~kind~~ or more strains of microorganisms ~~is at least one microorganism~~ are selected from ~~microorganisms belonging to~~ the genera *Escherichia* and *Corynebacterium*.

30. (Original) The process according to claim 29, wherein the microorganism belonging to the genus *Escherichia* is *Escherichia coli*.

31. (Original) The process according to claim 29, wherein the microorganism belonging to the genus *Corynebacterium* is *Corynebacterium ammoniagenes*.

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32. (Currently Amended) The process according to claim 3, wherein the microorganism capable of forming GKDM from a saccharide and GTP ~~is a microorganism having~~ has a strong activity of at least one enzyme selected from the group consisting of glucokinase ("*glk*"), phosphomannomutase ("*manB*"), mannose 1-phosphate guanylyltransferase ("*manC*"), phosphoglucomutase ("*pgm*"), phosphofructokinase ("*pfk*"), and GDP-mannose 4,6-dehydratase ("*gmd*").

33. (Original) The process according to claim 32, wherein the microorganism is at least one microorganism having a recombinant DNA comprising a vector and a DNA fragment containing at least one gene selected from the group consisting of a *glk*-encoding gene, a *manB*-encoding gene, a *manC*-encoding gen, a pgm-encoding gene, a *pfk*-encoding gene, and a *gmd*-encoding gene.

34. (Currently Amended) The process according to claim 33, wherein at least one of the *glk*-encoding gene, the *manB*-encoding gene, the *manC*-encoding gene, the *pgm*-encoding gene, the *pfk*-encoding gene or the *gmd*-encoding gene is ~~a gene~~ derived from *Escherichia coli*.

35. (New) A process for producing guanosine 5'-diphospho-fucose ("GDP-fucose"), comprising:

allowing a guanosine 5'-triphosphate ("GTP"), a saccharide and an enzyme source to be present in an aqueous medium, wherein the enzyme source is a culture broth of a microorganism capable of forming guanosine 5'-diphosphate-4-keto-6-deoxymannose ("GKDM") from a saccharide and GTP or a treated product of the culture broth;

forming and accumulating GKDM in the aqueous medium;

converting the accumulated GKDM into GDP-fucose using, as an enzyme source, a culture broth of a microorganism capable of converting GKDM into GDP-fucose or a treated product of the culture broth;

forming and accumulating GDP-fucose in the aqueous medium; and

recovering the GDP-fucose from the aqueous medium,

wherein the treated products of the culture broth are treated products independently selected from the group consisting of a concentrated product of the culture broth, a dried product of the culture broth, cells obtained by centrifuging the culture broth, a dried product of the cells, a freeze-dried product of the cells, a surfactant-treated product of the cells, a solvent-treated product of the cells, an enzyme-treated product of the cells and an immobilized product of the cells.

36. (New) The process according to claim 35, wherein the saccharide is selected from the group consisting of glucose, fructose and mannose.

37. (New) The process according to claim 35, wherein the microorganism capable of forming GKDM from a saccharide and GTP is at least one kind of microorganisms.

38. (New) The process according to claim 37, wherein the at least one kind of microorganisms is at least one microorganism selected from microorganisms belonging to the genera *Escherichia* and *Corynebacterium*.

39. (New) The process according to claim 38, wherein the microorganism belonging to the genus *Escherichia* is *Escherichia coli*.

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40. (New) The process according to claim 38, wherein the microorganism belonging to the genus *Corynebacterium* is *Corynebacterium ammoniagenes*.

41. (New) The process according to claim 35, wherein the microorganism capable of forming GKDM from a saccharide and GTP is a microorganism having a strong activity of at least one enzyme selected from the group consisting of glucokinase ("*glk*"), phosphomannomutase ("*manB*"), mannose 1-phosphate guanylyltransferase ("*manC*"), phosphoglucomutase ("*pgm*"), phosphofructokinase ("*pfk*") and GDP-mannose 4,6-dehydratase ("*gmd*").